

Patent claims

1. Gating device (3) to delimit an x-ray beam, with at least one absorber element (30, 31; 51) via which at least one slit for passage of the x-ray beam can  
5 be delimited,  
characterized in that  
the absorber element (30, 31; 51) is shaped such that the slit (32; 52-58) exhibits a slit width ( $\ell$ ) varying in the slit longitudinal direction (42).
- 10 2. Gating device (3) according to claim 1,  
characterized in that,  
considered in the slit longitudinal direction (42), the slit width ( $\ell$ ) increases towards a slit end or towards both slit ends, in particular starting from a central position.
- 15 3. Gating device (3) according to claim 1 or 2,  
characterized in that  
the absorber element (30, 31; 51) exhibits on the slit-side a curved outer contour or an outer contour polygonally approximating a curve.
- 20 4. Gating device (3) according to claim 1 or 2,  
characterized in that  
the absorber element (30, 31; 51) is shaped such that the slit (32) comprises a first region (45) of constant slit width ( $\ell$ ) and at least one further region (46, 467) with  
25 slit width ( $\ell$ ) varying in the slit longitudinal direction (42).
5. Gating device (3) according to claim 4,  
characterized in that,  
considered in the slit longitudinal direction (42), the first region (45) is arranged in  
30 the middle and that respectively one further region (46, 47) with slit width ( $\ell$ )

varying in the slit longitudinal direction (42) is present on both sides of the middle region (45).

6. Gating device (3) according to any of the claims 1 through 5,  
5 characterized by  
two absorber elements (30, 31) lying opposite one another and adjustable with regard to their distance from one another, such that the x-ray beam can be variably delimited.

10 7. Gating device (3) according to claim 6,  
characterized by  
an adjustment device (61) that acts on the absorber elements (30, 31) such that the absorber elements (30, 31) can preferably be moved independent of one another, perpendicular or at an angle to the slit longitudinal direction (42).

15 8. Gating device (3) according to any of the claims 1 through 5,  
characterized in that  
the absorber element (51) is fashioned as a preferably one-piece or one-part body in which are introduced a plurality of slits (52, 53, 54, 55, 56, 57) with average slit  
20 widths different from one another, of which at least one and preferably all exhibits or, respectively, exhibit a slit width ( $\ell$ ) varying in the slit longitudinal direction (42).

9. Gating device (3) according to claim 7 or 8,  
25 characterized in that  
the body of the absorber element (51) is fashioned flat, in particular plate- or disc-like.

10. Computer tomography apparatus (1) with an x-ray radiator (2) rotatable  
30 around a system axis (Z), with an x-ray detector (5) and with a radiator-side gating device (3),

characterized in that

the gating device (3) is fashioned according to any of the claims 1 through 9.

11. Computer tomography apparatus (1) according to claim 10,  
5 characterized in that  
the slit width ( $\ell$ ) varies dependent on the cosine of a fan angle ( $\beta$ ), whereby the fan  
angle ( $\beta$ ) is the angle between an eccentric ray of the x-ray beam and a central ray  
(36A).

10 12. Computer tomography apparatus (1) according to claim 10 or 11,  
characterized in that  
the slit width ( $\ell$ ) varies according to

$$\ell(\beta) = C/\cos\beta + D,$$

whereby C and D represent a constant for the appertaining slit (32, 52-58).

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